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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,286	01/07/2002	Sari Korpela	297-010742-US(PAR)	9028
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PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			EXAMINER JUNTIMA, NITTAYA	
			ART UNIT	PAPER NUMBER
			2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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<b>Office Action Summary</b>	Application No. 10/030,286	Applicant(s) KORPELA ET AL.	
	Examiner Nittaya Juntima	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to the RCE filed on 11/29/2006.
2. Claims 18-21 are allowed, and claim 15 was cancelled.
3. Claims 1-14, 16, and 17 are currently rejected under 35 U.S.C. 112, first paragraph.
4. Claims 1, 6-8, and 11-13 remain rejected under 35 U.S.C. 102(e).
5. Claims 9-10, 14, 16, and 17 remain rejected under 35 U.S.C. 103(a).

### *Claim Rejections - 35 USC § 112*

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-14, 16, and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended limitation “enabling a receiver to associate a correct channel coefficient with each transmitted symbol by starting the transmission pattern from the beginning in the beginning of each frame” as similarly cited in independent claims 1, 12, 13, and 17 is not support in the specification. Although the specification on page 5 explains how a synchronization symbol can be determined from a channel coefficient  $h$  and Fig. 5 discloses step 403 of starting the transmission pattern from the start of each frame, it does not explain *how* the

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step of starting the transmission pattern from the beginning in the beginning of each frame  
*relates* to the step of enabling the receiver to determine a correct channel coefficient with each transmitted symbol as claimed. How can transmission of pattern from the beginning in each frame enable a receiver to determine a correct channel coefficient with each symbol?

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 6-8, and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Alamouti et al. ("Alamouti") (USPN 6,185,258 B1).

Regarding claim 1, Alamouti teaches a method for transmitting a certain sequence of symbols ( $s_i, s_j$ ), said method comprising:

Constructing a frame of a certain number of consecutive symbols ( $s_i, s_j$ ) (because a number of consecutive symbols shown in Table 1 must be transmitted over a period of time as the sequence of signals cannot go on indefinitely, col. 4, lines 14-24, therefore, a frame must be constructed of a certain number of consecutive symbols).

Transmitting the symbols belonging to the sequence using at least two antennas (antenna 11 and antenna 12 in Fig. 1, and col. 4, lines 14-24)

Wherein the transmission of the sequence of symbols is with a certain transmission pattern (Table 1) (col. 4, lines 14-24).

Starting the transmission of the sequence of symbols from a predefined antenna (antenna 11). See col. 3, lines 62-col. 4, lines 24, and claim 6.

Starting the transmission pattern (Table 1) from the beginning in the beginning of each frame (the transmission pattern shown in Table 1 is started from the beginning at time  $t$  in the beginning of a frame, col. 4, lines 14-24).

Enabling a receiver (20, Fig. 1) to associate a correct channel coefficient ( $h_0$  or  $h_1$ ) with each transmitted symbol by starting the transmission pattern from the beginning in the beginning of each frame (as shown in eq. (3),  $h_0$  and  $h_1$  are associated with the received signal  $r(t)$  which comprises of the signals  $s_i$  and  $s_j$  from pattern shown in Table 1 transmitted at the beginning of a frame, i.e., time slot “ $t$ ”, col. 3, lines 41-col. 4, lines 2-14).

Regarding claims 6, 7, and 8, Alamouti teaches that each frame (because a number of consecutive symbols shown in table 1 must be transmitted over a period of time as the sequence of signals cannot go on indefinitely, col. 4, lines 14-24, therefore, a frame must be constructed of a certain number of consecutive symbols) consists of a certain number of consecutive time slots (time periods, i.e.  $t$ ,  $t+T$ , ...) and each time slot consists of a certain number of consecutive symbols, and said method further comprises transmitting “one/at least one/at least in one of the time slots at least one” symbol belonging to the sequence of symbol in each time slot (see table 1, col. 3, lines 62-col. 4, line 24, and claim 6).

Regarding claim 11, Alamouti teaches that the sequence of symbols is transmitted in downlink direction in a cellular network (see Fig. 1 and col. 3, lines 62-col. 4, line 24).

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Claim 12 is an apparatus (transmitter 10 in Fig. 1) claim corresponding to method claim 1, and is rejected under the same reason set forth in the rejection of claim 1 with the addition of an indicator (an indicator must be included in order to indicate antenna 11 to transmit the first symbol belonging to the sequence, col. 3, lines 60-col. 4, lines 24), a starter (a starter must be included in order for the transmitter to start the transmission pattern from the beginning in the beginning of a frame, col. 3, lines 60-col. 4, lines 24).

Claim 13 is network element (transmitter 10 in Fig. 1) claim with two antennas (antenna 11 and antenna 12), corresponding to method claim 1, and is rejected under the same reason set forth in the rejection of claim 1 with the addition of a controller (a controller must be included in order to control the transmitter 10 to transmit a sequence of symbols  $s_i, s_j$  to a transmission pattern shown in Table 1, col. 3, lines 60-col. 4, lines 24), an indicator (an indicator must be included in order to indicate antenna 11 to transmit the first symbol belonging to the sequence, col. 3, lines 60-col. 4, lines 24), and a starter (a starter must be included in order for the transmitter to start the transmission pattern from the beginning in the beginning of a frame, col. 3, lines 60-col. 4, lines 24).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. ("Alamouti") (USPN 6,185,258 B1).

Regarding claim 9, Alamouti does not teach that the length of the transmission pattern is larger than the length of the frame. However, it would have been an obvious matter of design choice to include that the length of the transmission pattern is larger than the length of the frame, since such a modification would have involved a mere change in the length of a component which involves only routine skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Claim 17 is a computer program product claim having functions corresponding to method claim 1 with an exception that Alamouti does not explicitly teach a computer usable medium having computer readable codes embodied therein for causing a computer to activate functions of a device (Transmitter 10 in Fig. 1, col. 3, lines 60-col. 4, lines 24). However, it would have been obvious to one skilled in the art at the time of the invention to include a computer usable medium having computer readable codes embodied therein for causing a computer to activate functions of a device, such as transmitter 10, into the computer program product as recited in the claim such that the computer readable codes can be portable and conveniently installed on other transmitters.

12. Claims 10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alamouti et al. ("Alamouti") (USPN 6,185,258 B1) in view of an admitted prior art (the specification).

Regarding claim 10, Alamouti teaches that the transmission of the sequence of symbols is started from the primary antenna (antenna 11), see table 1 and col. 3, lines 62-col. 4, lines 24.

However, Alamouti does not teach that the primary antenna transmits a common pilot signal.

An admitted prior art teaches that when transmission diversity and two antennas (TX1 and TX2 in Fig. 3) are in use, antenna TX1 transmits a common pilot signal (CPICH 201, page 4, lines 19-21).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Alamouti such that the primary antenna transmits a common pilot signal would be included as recited in the claim. The suggestion/motivation to do so would have been to enable one of the antennas to transmit the common pilot channel similarly as when no transmission diversity is employed as taught by the admitted prior art (page 4, lines 20-21).

Regarding claims 14 and 16, Alamouti teaches that the network element (transmitter 10 in Fig. 1 of Alamouti) is a radio network controller/a base station (a base station, col. 1 lines 56-62 and col. 3, lines 26-37 and 66-64). However, Alamouti does not teach a radio network controller/a base station of a spread spectrum system.

The admitted prior art teaches a radio network controller (a base station) of a spread spectrum system (WCDMA, page 1, lines 17-20, page 3, lines 4-8, and page 4, lines 19-21).

Given the teaching of the admitted prior art, it would have been obvious to one skilled in the art at the time the invention was made to include that the radio network controller is of a spread spectrum system as recited in the claim. The suggestion/motivation to do so would have been to enable the base station in the WCDMA network to provide transmission diversity using multiple antennas as taught by the admitted prior art (page 1, lines 18-20 and page 4, lines 19-21).



***Response to Arguments***

13. Applicant's arguments filed 12/19/2006 have been fully considered but they are not persuasive.

A. In the remarks regarding claim 1, applicant argues that Alamouti does teach that (i) this sequence/transmission pattern would have any correlation with frames, or (ii) that it be started anew at the beginning of each frame.

In response, regarding (i) it is clear from the teaching of Alamouti that the sequence of symbols with a certain transmission pattern transmitted in time slots as shown in Table 1 (col. 4, lines 14-24) must be transmitted within a frame comprising a number of time slots, e.g., from time slot "t" to time slot "t+XT", as the sequence of signals cannot go on/be transmitted indefinitely. Therefore, the sequence/transmission pattern clearly relates to a frame. Regarding (ii), clearly Alamouti teaches that the sequence/transmission pattern is started anew at the beginning of a frame (the transmission pattern shown in Table 1 is started from the beginning at time "t" in the beginning of a frame, col. 4, lines 14-24). Since there is no structural or functional difference between the claimed "transmission pattern" and "frame" and Alamouti's transmission pattern and inherent frame, therefore, Alamouti teaches every limitation as claimed. The rejection is maintained.

***Conclusion***


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nittaya Juntima  
February 27, 2007



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